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## CMFRI Newsletter

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Students in the Marine Biodiversity Museum at ICAR-CMFRI,  
Kochi during Open House



हर कदम, हर उभार  
किसानों का हमसफर  
भारतीय कृषि अनुसंधान परिषद

*Agrisearch with a human touch*

Indian Council of Agricultural Research  
**CENTRAL MARINE FISHERIES RESEARCH INSTITUTE**  
P.B. No. 1603, Ernakulam North P.O., Kochi - 682 018, Kerala, India

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## DIRECTOR SPEAKS



On 3<sup>rd</sup> February, 2019, ICAR-CMFRI celebrated the proud and glorious moment of its 72 Foundation Day. From its inception in 1947 as a Research Station based in Mandapam, of the erstwhile Madras State, it has emerged as a top marine fisheries research institute with centres located in all maritime states of India. The institute has a major role in ensuring the sustainability of the marine fishery resources through the promotion of responsible fishing and mariculture activities. The institute has contributed significantly in developing the National Marine Fisheries Policy 2017, which if implemented properly has the scope to increase marine fish production

in quantity and value, benefitting all stakeholders. The emphasis on ecolabelling and adoption of Ecosystem Based Fisheries Management (EBFM) approaches in developing out fisheries management plans are noteworthy. On the mariculture front, the institute has several successes to its credit. After the breakthrough in developing a hatchery technology for the Indian white shrimp during the 80s, the indigenously developed technologies for farming molluscs, breeding protocols for several high value food fishes like cobia and pompano, Recirculatory Aquaculture System (RAS), open sea cage designs and culture protocols for fish farming have been significant mileposts. The challenges are many as we move into an era of a vibrant and sustainable marine fisheries sector envisaged, but we should wholeheartedly strive with confidence to reach our goals.

With best wishes,

**A. Gopalakrishnan**  
Director

## About ICAR-CMFRI

The Central Marine Fisheries Research Institute, Kochi, is a premier research Institute under the Indian Council of Agricultural Research, devoted to research and training in marine fisheries and mariculture.

ICAR-CMFRI has three Regional Centres viz., Mandapam Camp, Visakhapatnam and Veraval and eight Research Centres located along the Indian coastline, catering to the marine fishery policy needs of all maritime states of the country.



# ICAR-CMFRI celebrated 72<sup>nd</sup> Foundation Day



Release of handbook on seed production of marine ornamentals at Mandapam Regional Centre by Dr.PS.B.R. James, Former Director, ICAR-CMFRI

The institute opened its doors for students and public on the occasion of its 72<sup>nd</sup> Foundation Day celebrations held on 5<sup>th</sup> February 2019 at its Headquarters in Kochi and Regional Research Centres in Veraval, Mumbai, Karwar, Mangalore, Calicut, Vizhinjam, Chennai, Tuticorin, Mandapam, Visakhapatnam and Digha as well as the Field Centre in Puri and the KVK

(Ernakulam). Visitors could see and understand the research activities of the institute. Besides exhibitions, awareness lectures, interactive meets, film exhibition and several competitions were organised by the Regional Research Centres of the Institute. The Open House programme evoked a huge response from the public with several thousand people visiting the institute and its regional research centres

to watch the splendours of the sea and to interact with the scientists.

The Central Marine Fisheries Research Station (as it was known earlier) came into existence on 3<sup>rd</sup> February 1947 in Mandapam, of the erstwhile Madras state. It initiated pioneering research on indigenous marine fishery resources aimed at the overall development of the marine fisheries sector of the country,



Release of poster at Mumbai Research Centre





*Visitors in the National Referral Museum at Headquarters*



*Visitors at the Hatchery facilities*



*Special invitees viewing the biodiversity museum in Tuticorin Research Centre*



*Visiting students in Madras Research Centre*

which had just become independent from the colonial British rule. The institute came under the Indian Council of Agricultural Research, (ICAR) in 1967 and in 1971, headquarters of the institute has shifted to Kochi, Kerala.

The National Marine Biodiversity Museum at Headquarters in Kochi which is a national designated repository of marine species with a collection of around 3000 marine specimens showcased, drew huge crowds of students. The fish ageing laboratory, models of cage fish farming, aquaponics, ornamental fish farming, recirculating aquaculture system (RAS) etc. were exhibited the public. School students were encouraged to join the 'Climate Club', a platform set up by the institute to create awareness on impact of climate change among the students. Open House at the Mandapam Regional Centre was inaugurated by Dr. P.S.B.R. James, Former Director, ICAR- CMFRI. A publication 'Handbook on Marine Ornamental Seed Production' and a First Aid kit 'Jelly Safe' to help fishermen deal with the occupational hazard of jelly fish stings were released on the occasion. More than 3,000 students from various schools and colleges in Ramanathapuram district visited the aquarium and museum of the centre and benefited from the video shows and interactive discussions arranged. The Madras Research Centre of the Institute conducted a quiz competition for the students. At Mumbai Research Centre, an elocution competition on 'impact of plastic pollution



in the marine life, and a drawing competition on 'effect of climate change in marine environment' for students was conducted. On the occasion, a mKrishi® Fisheries Mobile app poster was released

by Mr. Ramesh Dada Patil. Hon'ble MLA (Vidhan Parishad, Maharashtra State) with a briefing by Dr. Veerendra Veer Singh, Retd., Principal Scientist who developed the same for the benefit of fishermen in

collaboration with the TCS company, under NAIP project. The Puri Field Centre displayed live and preserved specimens of fishes, products and other publications of the institute.



Visiting students in Puri Field Centre



Visiting students in Mangalore Research Centre

## International Workshop on Fisheries and Aquaculture held at ICAR-CMFRI

Delegates from 12 member countries of the African Asian Rural Development Organisation (AARDO) attended the international workshop on fisheries and aquaculture held at ICAR-CMFRI in 15<sup>th</sup> January 2019. Training in areas such as marine fisheries assessment, fish stock estimation, promotion of responsible fisheries and mariculture activities like cage farming, along with practical sessions was

extended to the participants from Oman, Lebanon, Taiwan, Morocco, Syria, Tunisia, Libya, Zambia, Malawi, Mauritius, Sri Lanka and Bangladesh. AARDO is an inter-governmental organisation in the field of agricultural and rural development, with its headquarters in New Delhi and 33 member countries from Africa and Asia. Shri. K. S. Srinivas, IAS, Chairman, Marine Products Export Development Authority (MPEDA),

inaugurated the workshop. Speaking on the occasion, Dr. Manoj Nardeo Singh, Assistant Secretary General, AARDO stressed the need to produce more food globally by 2050 especially in developing countries using the same limited, available natural resources. Dr. T. V. Sathianandan, ICAR-CMFRI presided over the function. Dr. Imelda Joseph and Dr. Bobby Ignatius of Mariculture Division spoke on the occasion.



Delegates from 12 Afro-Asian member countries of AARDO attending the workshop with organisers



## Sea ranching programmes for enhancing livelihoods of fishermen

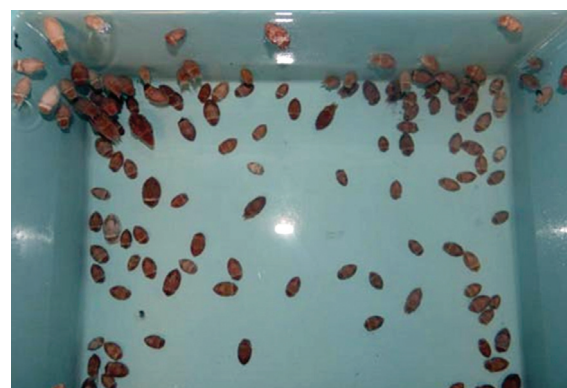
In a major effort to increase the marine fish production and ensure sustainable livelihoods for the fishermen, the institute is focussing on sea ranching programmes. The Mandapam Regional Centre released seeds of green tiger shrimp (*Penaeus semisulcatus*) in Palk Bay, while the Tuticorin Research Centre of the Institute conducted the sea ranching of cuttlefish (*Sepia pharaonis*) and squid (*Sepioteuthis lessoniana*) at Tuticorin. The periodical sea ranching activity aims to ensure the livelihood of fishermen in the regions by enhancing availability and maintaining the sustainability of the wild stocks of these species. On 31<sup>st</sup> January 2019, a total of 9 lakh *P. semisulcatus* seeds were sea ranching at Sangumal, Olaikuda in the Palk Bay by Mr. K. Muralidharan, Member, Institute Management Committee ICAR-CMFRI in the presence of Scientist-in-Charge, Dr. R. Jayakumar, Scientists, leaders of fishermen associations, fishermen, officials of State Fisheries Department, Press and Media were also present. In continuation, on 7<sup>th</sup> March, 2019 another 11 lakhs shrimp seeds of PL 15-25 size was released at Villundi Theertham, Palk Bay. Mr. K. Veera Raghava Rao I.A.S. District Collector of Ramanathapuram was the chief guest of



Sea ranching of green tiger shrimp seeds at Sangumal, Olaikuda, Palk Bay

the sea ranching programme. On 29<sup>th</sup> March, 2019, another 8 lakh shrimp PL 12-15 size were released at Mandapam (Thonithurai), Palk Bay. The Genetic Stock Identification programme for *Penaeus semisulcatus* population to evaluate the impact of sea-ranching on shrimp landings using polymorphic microsatellite molecular markers is also in progress.

The increase in demand of squids and cuttlefishes for exporting is leading to their targeted fishing. Cephalopod egg masses are accidentally entangled in the fishing nets and brought ashore leading to their destruction. Hence, an attempt was made by the Tuticorin Research Centre to collect possible numbers of such viable egg



60 days old juveniles of *Sepia pharaonis*

masses from the fishermen and transport them in aerated containers to the shellfish hatchery for rearing and sea ranch the juveniles into fishing grounds. The egg masses of *Sepioteuthis lessoniana* and *Sepia pharaonis* collected were maintained separately in well aerated 1 ton capacity FRP tanks and monitored for hatching. Regular batch hatching occurred and the young ones were collected and stocked in rearing tanks where they were fed *ad libitum* with appropriate sized live-feed comprising of mysids. The hatchery grown juveniles of 35 – 40 days were handed over to the fishermen in 10 litres aerated polythene bags for further release in the actual fishing ground.

(Reported by Mandapam Regional Centre and Tuticorin Research Centre)



Hatchery raised squid and cuttlefish being handed over to Periyathalai fishers by Smt. N. Chandra, Joint Director of Fisheries (Regional), Tamil Nadu State Fisheries Department, Thoothukudi

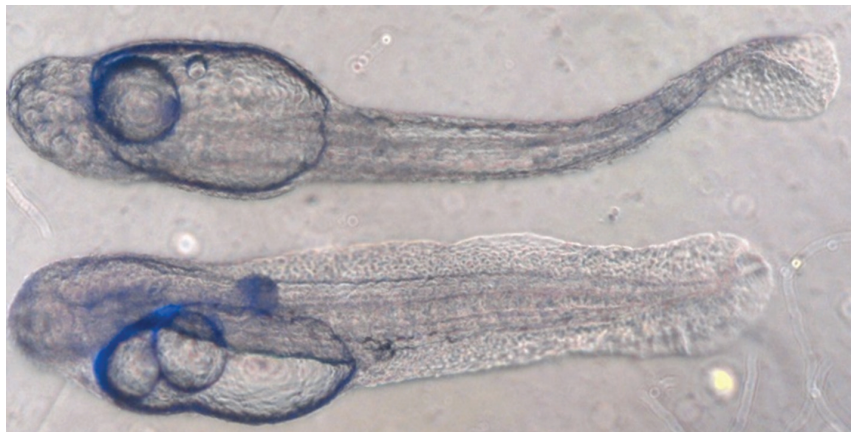
## Successful harvest of cage reared orange spotted grouper at Karwar

Successful harvest of the commercially important *Epinephelus coioides* (Orange spotted grouper) taken up at the Karwar research centre of ICAR-CMFRI was reported. Partial harvesting was done between 11<sup>th</sup> February and 4<sup>th</sup> March, 2019 depending on the local market demand. The fishes reared for one year in 6 meter diameter circular GI cages using pellet feed and low value fishes had an average weight of 1.5 kg each. About 650 fishes were harvested which earned 1.87 lakh rupees.



## First report of successful induced spawning of *Siganus vermiculatus* in India

*Siganus vermiculatus*, popularly known as Maze rabbit fish was induced to spawn at hatchery complex of the Karwar Research Centre. A female measuring 31 cm and having an egg diameter above 400 microns and male with milt having thick consistency were selected for the induced breeding trials. Both were given intramuscular injection of 500 IU and 200 IU of HCG respectively for 3 days at 24 hours interval. Nylon hapa was kept in the tank for egg attachment. The fertilized eggs were loosely adhesive with an average diameter of 560 microns. The initial hatching was observed inside the nylon hapa after 30 hours, with the newly hatched larvae measuring 1.71 mm in



Newly hatched larvae of *Siganus vermiculatus*

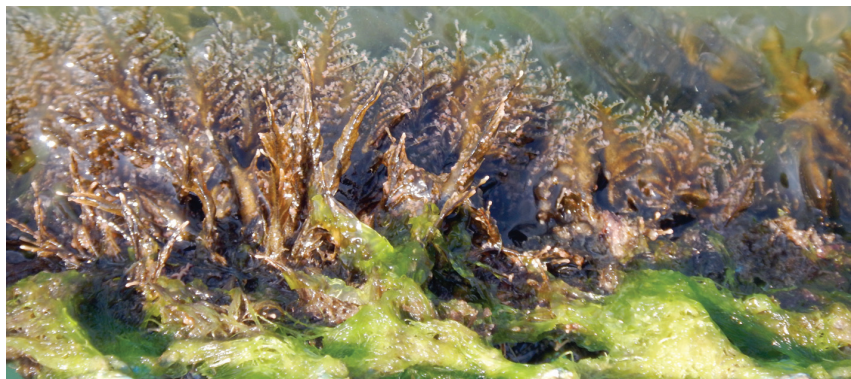
size with yolk sac and oil globules. Larval rearing was done using pure culture of

marine algae (*Isochrysis*, *Nanochloropsis*, *Chlorella* species), copepods and rotifers.

## Fouling by the Christmas tree hydroid in marine fish farm cages

*Pennaria disticha* is a stinging hydroid found on artificial and natural hard substances with some water movement. It is a native species of Atlantic and it is considered as invasive in other ecosystems. During the month of February 2019, heavy fouling of this epiphytic hydroid was recorded on the cage nets of marine fish farm's in Gulf of Mannar and this is the first time such occurrence is reported.

(Reported by Dr. R. Saravanan, Mandapam Regional Centre)



Fouling hydroid observed on fish cages

## Jewellery crafted from fish otoliths : a new outlook

Otolith, commonly known as "earstones", are hard, calcium carbonate aragonite structures in the inner ear cavity of all teleost fishes that serve as balancing organ and also aid in hearing. Researchers considered otoliths as the natural data loggers of fishes with wealth of information on fish life such as age, growth rates etc. encoded in it. They are being used as ornaments and lucky stones in several countries. Studies in the Fish Ageing Lab of ICAR-CMFRI showed that otoliths of certain fishes have attractive shape and good lustre leading to preliminary trials on using it for making jewels. Considering the positive



Jewellery crafted with fish otoliths

response, it is proposed to identify those species having scope for starting otolith based jewel designing which can offer



income for fisherwomen from coastal areas.

(Reported by E. M. Abdussamad, Pelagic Fisheries Division)



## Unusual landing of the Indian Ocean blue-spotted maskray

*Neotrygon indica*, was observed in the landings at Malpe Fisheries Harbour, Udupi, Karnataka on 28<sup>th</sup> and 30<sup>th</sup> March, 2019. Caught accidentally in the bottom trawls operated for demersal fishes they were sold @ ₹ 110/- per kg. Locally known as "thorake" the disc width of the specimens landed ranged from 175 to 305 mm with weight ranging from 0.3 to 1.0 kg.

(Reported by: Purushottama, G. B.,  
Rajesh, K. M., Sujitha Thomas, and  
Ulvekar, C. G., Mangalore Research Centre)

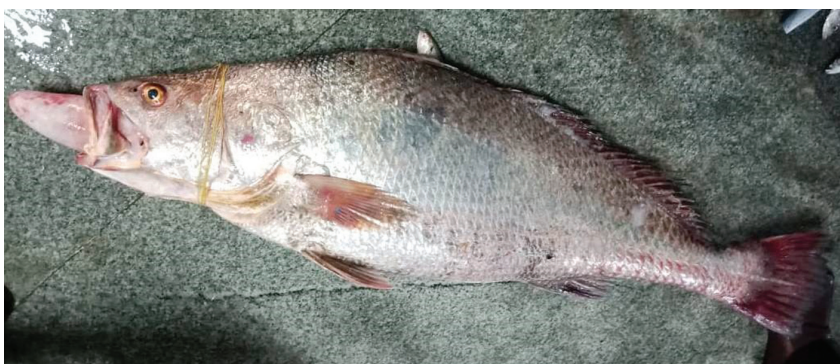
*Neotrygon indica* landed in trawl net  
at Malpe



## Unusual landing of spotted croaker

A single specimen of spotted croaker *Protonibea diacanthus* caught by multiday trawler was landed at Paradeep Fisheries Harbour, Jagatsingpur, Odisha on 28<sup>th</sup> March 2019. The specimen measuring 75 cm in total length and weighing 19 kg was auctioned at the landing centre fetching a price of ₹ 99,000. Airbladders of croakers are highly valued as there is demand for same in the food processing industries.

(Reported by Subal Kumar Roul and Rajesh  
Kumar Pradan, Puri Field Centre)



Spotted croaker landed at Paradeep Fisheries Harbour

## Oil sardine fishery in Palk Bay

During November to December 2018, mechanized pair trawl units of 14 - 16 m OAL with 160-180 HP diesel engines landed an average of 1 - 1.5 tonnes of oil sardines per unit from Palk Bay of Rameshwaram, Tamil Nadu. In the past, most of the landings were

procured by traders for fishmeal plant but, now the scenario has changed with no demand for oil sardine in fishmeal plants. Instead, they were sent to Kerala as chilled oil sardine where it is in good demand for domestic consumption. The fresh oil sardine sold at the rate of ₹ 50

per kg in the landing center are priced at about ₹ 200-250 per kg in fish markets of Kerala and profits are realized by the middlemen rather than fishers.

(Reported by Dr. R. Vinothkumar, Mandapam  
Regional Centre)

## Baleen whale washed ashore

A baleen whale of about 9 m was found washed ashore near the banks of the Kantia Hai mangrove forest, Pravati village inside the Gahirmatha Marine Sanctuary in Odisha, on 10<sup>th</sup> January 2019.

(Reported by Subal Kumar Roul and Rajesh  
Kumar Pradhan, Puri Field Centre)

Dead baleen whale beached in  
Gahirmatha Marine Sanctuary





# Entrepreneurship training for sea cage farming

- Skill development programme to help the youth in the Kadamakkudy panchayat of Ernakulam District to become small-scale entrepreneurs in cage fish farming was held from 23<sup>rd</sup> to 25<sup>th</sup> February 2019. The Korampadam Service Co-operative Bank, Kothad joined hands with ICAR-CMFRI to provide training in various aspects of fish farming in cages. Cage fabrication, site identification, species selection, feed management, harvest and marketing were addressed in the training attended by 114 villagers and also included visits to cage farming sites. The collaborative programme has been linked with ICAR-CMFRI's ongoing project launched last year that aims to train 5000 fishermen in cage fish farming across the country, with the financial assistance of the National Fisheries Development Board (NFDB).

and deployment; sea cage grow-out culture; Integrated Multi-Trophic Aquaculture (IMTA) farming practices; seaweed culture; pearl culture; juvenile cephalopod grow-out culture; and low cost farm-made fish feed formulation and preparation was provided. Scientist-in-charge of the Tuticorin Research Centre inaugurated the programme in the presence of Shri. Raghuvaran Rajesh, Forest Range Officer & Zonal In-charge GOMBRT. Altogether 25 trainees were trained during the program which was co-ordinated by the ICAR-CMFRI team comprising Dr. P. P. Manojkumar, Dr. I. Jagadis, Dr. L. Ranjith and Mr. D. Linga Prabu and the team from GOMBRT comprising Shri Raghuvaran Rajesh and Mr. Manthanakumar.

- The second phase of the NFDB skill development programme at the

Tuticorin Research Centre of ICAR-CMFRI trained 50 selected fishers from different coastal villages of Thoothukudi district in open sea cage culture and mariculture from 26<sup>th</sup> to 28<sup>th</sup> February 2019. The training focused on methods of sea cage farming of commercially important marine fishes and shellfishes, Integrated Multi-Trophic Aquaculture farming practices, seaweed culture



with practical demonstration session on the preparation of seaweed culture rafts with seeded monolines was done pearl culture and low cost



*Participants of skill development programme in cage fish farming held at Headquarters*

- Training programme on open sea cage culture and mariculture jointly organised by the Tuticorin Research Centre of ICAR- CMFRI and the Gulf of Mannar Biosphere Trust (GOMBRT) of the Forest Department, Thoothukudi was held in Tharuvaikulam village during 8<sup>th</sup> to 10<sup>th</sup> January 2019. The second batch from Pattinamarthur and Sippikulam villages in Thoothukudi were trained during 29<sup>th</sup> to 31<sup>st</sup> January 2019. During the programme, training on different aspects of sea cage farming and mariculture activities such as site selection; sea cage design; fabrication



*Cage culture trainees with scientists at Tuticorin Research Centre*



fish feed development. Mrs. N. Chandra, Joint Director of Fisheries (Regional), Tamil Nadu State Fisheries Department was present on the

occasion. The programme had invited lectures by Mr. M. Saravanan, Assistant Technical Manager, RGCA, Dr. P. Rameshkumar, Scientist,

Mandapam Regional Centre of ICAR-CMFRI and Mrs. Uma Kalaiselvi, Assistant Director of Fisheries, Thoothukudi.

## Training Programme on marine ornamental fish seed production

A training programme on "Marine Ornamental fish seed production" sponsored by the Mangrove Foundation, Department of Forests, Govt. of Maharashtra was conducted at the Mandapam Regional Centre of ICAR-CMFRI for the beneficiaries from 2<sup>nd</sup> to 5<sup>th</sup> February 2019. 21 participants including seven officials of Mangrove Foundation attended the training programme coordinated by Dr. Anikuttan, K. K. and Dr. B. Johnson.

*Hands-on training on Aquarium tank fabrication*



## Training in mariculture activities for African Asian Rural Development Organisation

As a part of the AARDO training organised by ICAR-CMFRI, Kochi, 13 trainees from AARDO member countries were given hands on training

in mariculture related activities such as seed production of marine fin fishes and shell fishes and marine fish farming in cages from 21<sup>st</sup> to 25<sup>th</sup> January, 2019 at

its Mandapam Regional centre.

*(Reported by Mandapam Regional Centre)*



*Practical class on cannulation of cobia*



*AARDO Trainees with scientists at Mandapam Regional Centre*

### Training on fish ageing

Hands on training on fish ageing using hard parts was organised by at the Fish Ageing and Image Analyzing Laboratory of the Pelagic Fisheries Division, during January 2<sup>th</sup> to 11<sup>th</sup> 2019 attended by six researchers from different organisations. Age estimates of fishes play a vital role in understanding of the life history and population dynamics of fishes and is an important input data for most of the

analytical models used in stock assessment. Among the various methods employed for age and growth estimates of fishes, hard part based estimates are found to be more reliable and are getting wide acceptance. The training equipped the researchers with updated techniques of fish ageing and will develop skilled manpower to meet the growing requirement for fish ageing.

*(Reported by Dr.E.M.Abdussamad, Course Director, Pelagic Fisheries Division)*



*Faculty and participants of fish ageing training with Dr. A. Gopalakrishnan, Director, ICAR-CMFRI*

- Training on Fisheries E-Commerce implementation for Himachal Pradesh Fisheries Department was organised during 7-8 February, 2019 at Bilaspur, Himachal Pradesh by the Demersal Fisheries Division.



## Training on crab farming

Training programme on 'Crab resources of India and culture methods' was organised at ICAR-CMFRI Headquarters from 14<sup>th</sup> to 15<sup>th</sup> March, 2019 and 36 participants attended the programme. The training conducted by the Crustacean Fisheries Division,

included theory and practical classes and field trip to crab farming sites nearby.

*(Reported by: Dr. Josileen Jose, Crustacean Fisheries Division)*

- In connection with world wetlands day ICAR-CMFRI-ATIC organized one day training programme for the

students of St. Michael's College, Cherthala on 5<sup>th</sup> February, 2019. A Motivational visit and student-scientist interactive session under the Walk with the Scholar programme was also organised on 22<sup>nd</sup> February, 2019.

*(Reported by Dr. N. Aswathy, Manager, ATIC)*



*Participants of the crab farming training programme*

## Cage culture demonstration under all India Network Project on Mariculture

Demonstration of seabass culture in cages in the sea under All India Network Project on Mariculture was launched at Karwar. The 6 m diameter GI cage given to a fisherman SHG at Karwar was stocked with nursery reared seabass on 2<sup>nd</sup> March, 2019 in the presence of Dr. Imelda Joseph, Mariculture Division. Around 1300 seabass fingerlings of average weight 20g were stocked in the cages and daily feeding of the fishes was taken up by the SHG members.

- Training programme on 'Advances in Marine Fisheries' for B.FSc students of College of Fisheries, Chattisgarh was held during 18-24, February 2019 at ICAR-CMFRI. The program was co-ordinated by Dr. T. M. Najmudeen and Dr. Livi Wilson, Demersal Fisheries Division.

## Workshop on Elasmobranchs Value Chain

This Workshop was organised at ICAR-CMFRI, Kochi during 1-3 April, 2019 by the Demersal Fisheries Division.

## Workshop on 'Best Practices' for Trawl Fishery in India

A stakeholders workshop on Development of Guidelines for 'Best Practices' for Trawl Fishery in India was organised at Mumbai Research Centre on 11<sup>th</sup> January, 2019. Mr. Ramdas Sandhe, Chairman, Maharashtra Rajya Macchimar Shakari Sangh Ltd., Mumbai and vice president National Federation of Fishers Coop. Ltd., FISHCOPFED, New Delhi and Mr. Dilip N. Pagdhare, General Secretary Federation of Indian fishery Industries (FIFI), and Chairman, Mahim Macchimar V.K. Soc Ltd., Mumbai were also present.

- The second Working Committee Meeting on "Fishery Improvement Programme- Palk Bay Flower Shrimp" was held at Mandapam Regional Centre on 23<sup>rd</sup> February 2019. The participants included fishermen, processors, NetFish, ICAR-CMFRI, ICAR-CIFT, Alcom Exim and bluesensus.



*Stocking of seabass seeds under AINP on Mariculture at Karwar*



## Memorandum of Understanding inked

- In a move to strengthen research networks in marine biodiversity and allied areas, ICAR-CMFRI has inked an Memorandum of Understanding (MoU) with Maharaja's College, Ernakulam, one of the oldest colleges in Kerala. The MoU was signed by Dr. A. Gopalakrishnan, Director ICAR-CMFRI and Dr. K. N. Krishnakumar, Principal, Maharaja's College. The linkage is aimed at boosting research works related to marine fisheries, marine biotechnology, marine biodiversity and mariculture along with various awareness programmes in connection with conservation of marine environment, preventing marine pollution and promoting citizen science projects by involving



*Signing of MoU with Maharajas College*

college students.

- An MOU has been signed between the Fisheries Department of Puducherry and ICAR-CMFRI to initiate a project on bivalve farming in Puducherry and Karaikal under the FIMSUL II program, with an outlay of ₹ 47 lakhs.

## Awards & Recognitions

Dr. Eldho Varghese received the NAAS Young Scientist Award for the biennium 2017-18 in recognition of his contributions in Social Sciences. The award was presented during XIV Agricultural Science Congress-2019 organized by National Academy of Agricultural Sciences in collaboration with the ICAR and Indian Agricultural Research Institute, New Delhi during February 20<sup>th</sup>-23<sup>rd</sup>, 2019 held at NASC Complex, New Delhi.

- Dr. Eldho Varghese received Best Paper award during 72<sup>nd</sup> Annual conference of ISAS which was held in CIAE, Bhopal during 13<sup>th</sup>-15<sup>th</sup> December, 2018 for a paper adjudged best among the papers published in the Journal of Indian Society of Agricultural Statistics during 2014-2015 in the area of 'Design of Experiments'. He also received Best Paper award for his presentation in the Section of 'Statistical Modelling'

of the paper 'Bayesian state-space implementation of Schaefer production model for assessment of stock status of multi-gear fishery' with co-authors Sathianandan, T. V., Jayasankar, J., Somy Kuriakose, Mini, K. G. and Muktha, M.

- Mr. Santosh N. Bhendekar received the Best poster award for his presentation at the International Conference on Challenges and opportunities for sustainable Fisheries



*Dr. Eldho Varghese receiving the NAAS Young Scientist award*



*Best paper award recieved by Mr. Santosh at COSFAD 2019*



and aquaculture development (COSFAD 2019) held at College of Fisheries, Ratnagiri, Maharashtra during 17<sup>th</sup>-20<sup>th</sup>, January, 2019.

- Awards for presentations made at the World Brackishwater Aquaculture Conference (BRAQCON, 2019) held at ICAR-CIBA, Chennai during 23<sup>rd</sup>-25<sup>th</sup>, January, 2019 were Best Paper awards for the presentation 'Constitution of an integrative approach for scaling up adaptation options to combat climate change through climate-smart village (CSV) concept: A case study from Karnataka' by Dr. Dineshbabu A. P., Mr. D. Linga Prabu, for his presentation "Effect of diurnal fluctuations of dietary protein level on growth and digestive enzymes of snubnose pompano, *Trachinotus blochii* (lacepede, 1801); Dr. T. M. Najmudden for his presentation 'Characterisation of Biochar from the water hyacinth *Eichornia crassipes* and its effect on growth of fish and paddy in integrated culture systems'.
- Dr. Sujitha Thomas, received Best poster award for the presentation

'Assessment of environmental status of the coastal aquaculture locale in Karnataka - A precursor for carrying capacity study'.

- Dr. P. Laxmilatha received Best Poster award for the poster entitled 'Integrated taxonomy reveals the

exceptional phenotypic plasticity in *Conus (pinoconus) catus* among the Lakshadweep and Andaman Archipelagos' presented in the International Conference on Benthos ICB 5<sup>th</sup>-8<sup>th</sup>, March 2019 at Cochin University of Science and Technology.

**M**r. Ratheesh Kumar R., Scientist was awarded Ph.D degree on 17<sup>th</sup> January, 2019 for the research thesis 'Spatio temporal variations in stationery bagnet fishery of Maharashtra coast with reference to environmental factors' by ICAR-Central Institute of Fisheries Education, Mumbai.



**M**r. Pralaya Ranjan Behera was awarded doctoral degree for his thesis entitled 'Species diversity and economic valuation of trawl by-catch off Visakhapatnam coast, north Andhra Pradesh' by the Department of Zoology, Andhra University, Visakhapatnam, on 21<sup>st</sup> February, 2019.



## Exhibition

- The Madras Research Centre of ICAR-CMFRI participated and put up exhibition stall in the World Brackish Water Aquaculture Conference-2019 (BRAQCON-2019) at ICAR-CIBA, Chennai during 22-25 January 2019 and at the Chennai Science Festival 2019 held at Periyar Science Centre Campus, Chennai from 19 to 22 February 2019.
- Marine ornamental fishes, food fishes, cage farming activities carried out by the ICAR-CMFRI were displayed by the Mandapam Regional Centre in the exhibition held on 11<sup>th</sup> January 2019 at Ramanathapuram in connection with the visit of Shri. Banwarilal Purohit, Hon'ble Governor of Tamil Nadu. Dr. M.Manikandan, Hon'ble Minister for Information Technology, Government of Tamil Nadu and Shri. K. Veera Raghava Rao I.A.S. District Collector of Ramanathapuram were also present. Dr. R. Jayakumar,



Exhibition Stall of ICAR-CMFRI at BRAQCON 2019

Scientist-in-Charge, Dr. M. Sakthivel, Dr. K.K. Anikuttan, Shri. M. Sankar and Dr. P. Ramesh Kumar co-ordinated the activities in the stall. A similar stall was also set up in the exhibition organised on 1<sup>st</sup> February 2019 by the District Collector of Ramanathapuram during the visit of Shri. Rakesh Ranjan IPS, NITI Aayog, Govt. of India.

(Reported by Mandapam Regional Centre)



Display of Mandapam Regional Centre activities at Ramanathapuram



Journal Club organised a talk on 'Plastic Contamination of the Ocean: Are We in Crisis' by Professor Richard Lampitt, National Oceanography Centre UK on 8<sup>th</sup> February 2019 attended by several scientists and researchers. The talk deliberated on the sources of plastic contamination and its harm to marine ecosystems.

*Talk by Professor Richard Lampitt, on plastic pollution in the oceans*



Recreation Club was active at Headquarters and various centres in carrying out staff welfare activities and celebrating various occasions in spirit of togetherness and joy.



*New Year 2019 celebrations at Headquarters*



*Club Day Celebrations by staff and family at Mangalore Research Centre*



*Pongal celebrations at Karwar Research Centre*



*Traditional Samathuva Pongal celebrations at Mandapam Regional Centre*

## Visit of Western Sydney University (WSU) Team

The Indian Council of Agricultural Research (ICAR) had signed a memorandum of understanding (MoU) with Western Sydney University (WSU), Australia to collaborate in cutting-edge research and enable academic exchange between the two countries. As part of the collaboration, Western Sydney University (WSU) team visited ICAR-CMFRI on 4<sup>th</sup> December, 2018. Agricultural Technology Information Centre (ATIC) along with KVK, Ernakulam of CMFRI co-ordinated the

interactive meeting held in ICAR-CMFRI, Kochi. Dr. Nisha Rakesh, Research Development Advisor and Prof. Ian Anderson, Director, Western Sydney University discussed the opportunities for collaboration with ICAR-CMFRI in aspects of agriculture and aquaculture. Dr. K. K. Joshi, Head, Marine Biodiversity Division of ICAR-CMFRI and Dr. Shinoj Subramanian, Head, KVK made scientific presentations during the meeting.

*(Reported by Dr. N. Aswathy, Manager, ATIC)*



*Interactive meeting with WSU team*



## TOLIC's Rolling Trophies for ICAR-CMFRI

The Rajbhasha Rolling Trophy of Kochi Town Official Language Implementation Committee for the best implementation of Official Language

during 2017-18 was awarded to ICAR-CMFRI, Cochin on 15<sup>th</sup> March, 2019 by Mr. N. Jayasankar, IRS, Commissioner of Income Tax, Kochi and Dr. K. Ajitha,

Head, Department of Hindi, CUSAT, Cochin. The institute also bagged Rolling Trophy for Best Hindi House Magazine, Matsyagandha (2017-18).



*Rolling Trophy for Best official language implementation awarded to ICAR-CMFRI*

- Official Language activities of ICAR-CMFRI were presented in detail at the Hindi Seminar organized by Hindustan Petroleum Corporation Ltd. Cochin under the auspices of TOLICs of Central Government Offices and PSUs in Cochin on 6<sup>th</sup> January, 2019 as requested by the Secretary, Kochi TOLIC for the participants of the Seminar.
- Shri Navin Kumar Yadav, Assistant Director (OL) inspected Official Language activities of Mumbai Research Centre of ICAR-CMFRI on 27<sup>th</sup> February, 2019 and gave suggestions for the progress of Official Language implementation.
- Students and Teachers of Hindi Department of St. Paul's College,

Kalamassery visited Hindi Section of ICAR-CMFRI on Foundation Day and they were given a brief on the importance of Official Language in Central Govt. Offices, use of UNICODE, Hindi in research activities etc.



## 'Farm Shoppe' launched to facilitate marketing avenues for farmers

The Krishi Vigyan Kendra (Ernakulam) of the ICAR Central Marine Fisheries Research Institute (CMFRI), Kochi and the Agricultural Technology Information Centre- ATIC of the Institute jointly launched 'Farm Shoppe- the safe food store' at the ICAR-CMFRI headquarters in Kochi on 4<sup>th</sup> January 2019. Fresh, hygienic food materials directly procured from farmers, farmer collectives and self-help groups will be made available in the outlet. An initiative to provide market

avenue for farmers in line with the 'Doubling Farmers' Income by 2022' programme of the Government of India, the Farm Shoppe is aimed at demonstrating a model that ensures fair price to farmers while supplying safe food to the consumers avoiding middlemen. Organic Food products used at home on daily basis such as fish, rice, egg, milk, cooking oil, pulses, spices, etc are available for sale at the outlet thus playing a crucial role in promoting organic farming



activities in the region. Farm Shoppe is managed by utilising revolving fund of the KVK Ernakulam. The facility was inaugurated by Dr. A. Gopalakrishnan, Director, ICAR-CMFRI.

## Live webcast of inaugural function of PM-KISAN

Live webcast of inaugural function of Pradhan Mantri Kisan Samman Nidhi (PM-Kisan) was done in ICAR-CMFRI, Kochi on 24<sup>th</sup> February 2019 and 45 farmers attended the programme. Further, the details of PM-Kisan were conveyed to the farmers during the Farmer Scientist interaction that followed. Dr. A. Gopalakrishnan, Director, ICAR-CMFRI chaired the function and Mrs Mini Dileep, Narakkal Ward member attended as special invitee for the programme.

## High Level Consultation on Perspective Plan for the ICAR-KVK at Lakshadweep



In connection with the reactivation of the ICAR-KVK-Lakshadweep, a high level consultation on the Perspective Plan for the KVK was held in Kavaratti Island Lakshadweep on 9<sup>th</sup> March, 2019 under the chairmanship of Dr A. K. Singh, Deputy Director General (Agri. Extn.), ICAR-New Delhi. The Secretary (Agriculture, Fisheries and Animal Husbandry), Administration of the U.T. of Lakshadweep and Director, ICAR-Agricultural Technology Adaptation and Refinement Institute (ATARI), Bengaluru attended the consultation. Scientists from

the ICAR institutions like the Central Marine Fisheries Research Institute (CMFRI), Central Plantation Crops Research Institute (CPCRI), Central Institute of Fisheries Technology (CIFT) and Central Island Agricultural Research Institute (CIARI); and the heads of the departments of Fisheries, Agriculture, Animal Husbandry and Rural Development of the Union Territory of Lakshadweep. Lead farmers, Lead Bank and representative of All India Radio also attended the consultation.

## Wealth from Fish Waste: KVK-Lakshadweep conducts Entrepreneurial Capacity Building for Women SHGs of Kavaratti Island

The KVK-Lakshadweep conducted 3 days training to the members of the women Self Help Groups (SHG) in Kavaratti Island on making valuable commodities like poultry feed, silage, manure, etc. from fish waste during production of brine cooked, smoked and sun-dried tuna loins, known as Masmin prepared from skipjack tuna. Existing practice is to bury the waste on the seashore polluting the soil and water

besides affecting aesthetic value of this important tourist destination. The KVK thus has prioritised rightful utilisation of the fish waste to produce valuable products so as to keep the islands clean while yielding livelihood to the local, especially the womenfolk. The training held during 9<sup>th</sup>-11<sup>th</sup> March, 2019 was with the technical collaboration of the ICAR-KVK-Ernakulam, Socio-economic evaluation and technology transfer

division (SEETTD) of ICAR-CMFRI and ICAR-Central Institute of Fisheries Technology (CIFT). The training was inaugurated by Dr. A. K. Singh, Deputy Director General (Agri. Exn.), ICAR, New Delhi in the august presence of dignitaries from the ICAR as well as the Administration of the U.T. of Lakshadweep including the Village Panchayat of Kavaratti Island.



- **Dr. A. Gopalakrishnan**, Director attended the meeting with the Hon'ble Union Agriculture Minister at New Delhi on 16<sup>th</sup> & 17<sup>th</sup> January 2019, regarding the proposed village adoption programme at Rameshwaram, Mandapam.

Participated in the World Conference on Brackishwater Aquaculture (BRAQCON-2019) organized by ICAR-CIBA, Chennai on 22<sup>nd</sup> and 23<sup>rd</sup> January 2019.

Attended the Annual Conference of Vice Chancellors of Agricultural Universities & Directors of ICAR Institutes held in New Delhi from 31<sup>st</sup> January to 1<sup>st</sup> February 2019 and attended the meeting of Directors of Fisheries Research Institutes on 2<sup>nd</sup> February 2019.

Attended the 14<sup>th</sup> Agricultural Science Congress organized by National Academy of Agricultural Sciences (NAAS), Indian Council of Agricultural Research (ICAR) and Indian Agricultural Research Institute (IARI) at National Agricultural Science Complex, New Delhi from 20<sup>th</sup> to 23<sup>rd</sup> February 2019.

- **Dr. K. S. Mohamed**, attended the second meeting of the India-Australia collaborative project on 'Lenfest Benchmarks for Ecosystem Assessment' at Seattle, Washington, USA during 19-22<sup>nd</sup> February, 2019.

Attended Stake holders meeting on conservation and management of Blue swimming crab (*Portunus pelagicus*) from Palk Bay region, organized by CMPA and Tamil Nadu State Fisheries Department, Ramanathapuram on 5<sup>th</sup> March, 2019.

- **Dr. Prathibha Rohit**, attended stakeholder consultation workshop on the bait fishery management plan organized by WWF at Kavarathi UT of Lakshadweep on 23<sup>rd</sup> January, 2019.

Attended MSC certification meeting of Lakshadweep Pole & Line skipjack tuna held at Kochi on 7<sup>th</sup> February, 2019.

Attended technical programme finalization meeting held in Chennai on 23<sup>rd</sup> February, 2019, regarding the IOTC session to be conducted in Hyderabad.

- **Dr. P. Laxmilatha**, attended the Stakeholder Consultations at Chennai for Phase 2 of the Bay of Bengal - Large Marine Ecosystems project of BOBP-IGO held in Chennai on 22<sup>nd</sup> February, 2019.

Attended the XXV<sup>th</sup> consultative group meeting of Chennai Base of Fishery Survey of India held on 19<sup>th</sup> March, 2019

- **Dr. R. Narayanakumar**, attended the Review Meeting of the FIMSUL-II Component 3 (Fisheries Management)

project at the Department of Fisheries, Government of Tamil Nadu, on 7<sup>th</sup> March, 2019.

- **Dr. Shoba Joe Kizhakudan**, attended the project review meeting of SAC, ISRO's SAMUDRA program (Satellite-based Marine Process Understanding, Development, Research and Applications for blue economy) at Space Applications Centre, ISRO, Ahmadabad on 4<sup>th</sup> February 2019.
- **Dr. R. Jayakumar** attended the "Societal Awareness Programme for the fisher folk of Mandapam region in combating corrosion & fouling in the sea going vessels" organized by the Corrosion Testing Centre, CSIR-CECRI Mandapam on 8<sup>th</sup> March, 2019.
- **Dr. Akhilesh K. V.**, attended the meeting of the national committee for the international Indian Ocean expedition 2(IIOE-2) held on 30<sup>th</sup> January in New Delhi.
- **Dr. B. Johnson**, participated as member in the Scientific Advisory Committee of KVK, Ramanathapuram on 6<sup>th</sup> March, 2019.
- **Dr. R. Saravanan**, participated in the Stakeholder Consultation on Upscaling of Fisher Friend Mobile Application" held at MSSRF, Chennai on 27<sup>th</sup> February 2019.
- **Dr. Anulekshmi Chellappan and Shri. Santosh N. Bhendekar**, attended meeting with Additional Chief Secretary, Maharashtra, Mr. Praveen Pardeshi IAS, Shri. Ramesh Dada Patil, MLA (Vidhan Parishad, Maharashtra State) and Hon' Commissioner of Fisheries, Govt. of Maharashtra held in Mumbai on 7<sup>th</sup> February, 2019.
- **Dr. Ramkumar S., and Dr. Akhilesh K. V.**, attended and coordinated meeting with ONGC officials regarding consultancy project on ONGCs Seismic Survey off Thane and Palghar districts on 21<sup>st</sup> February, 2019 and 11<sup>th</sup> March, 2019 held at Mumbai.
- **Dr. Ramkumar S.**, Scientist attended and coordinated meeting with ONGC officials at Mumbai Research Centre of ICAR-CMFRI regarding consultancy project on ONGCs Seismic Survey off Thane and Palghar districts.
- **Dr. Akhilesh K. V.**, attended the meeting of the national committee for the international Indian Ocean expedition 2(IIOE-2) on 30<sup>th</sup> January held at Prithvibhavan (MoES), New Delhi.
- **Dr. Shubhadeep Ghosh** attended a meeting organized by the Dept. of Fisheries, Andaman and Nicobar Administration on "Developing a

roadmap for development of mariculture and marine capture fisheries in Andaman and Nicobar Islands" during 28<sup>th</sup> January-1<sup>st</sup> February, 2019 at Port Blair.

Attended meeting of Andhra Pradesh State Biodiversity Board on 24<sup>th</sup> January, 2019 at Vijayawada.

- **Dr. Ritesh Ranjan**, attended Technical Committee Meeting at NFDB, Hyderabad on 25<sup>th</sup> February, 2019.
- **Dr. Pralaya Ranjan Behera**, Scientist attended the Cross Sectoral Workshop on State Biodiversity Strategy and Action Plan (SBSAP) 2019-2029 organized by AP State Biodiversity Board on 30<sup>th</sup> January, 2019 at Vijayawada.
- **Dr. P. P. Suresh Babu and Dr. Anuraj A.** have attended a meeting to discuss about the NFDB project on open water cage culture with the Department of fisheries, Govt. of Maharashtra at Malvan, Sidhudurg district, Maharashtra during 5<sup>th</sup>-6<sup>th</sup> January, 2019
- **Dr. N. Aswathy** attended the International training workshop on Data Analysis at DDU KAUSHAL Kendra, CUSAT, Kochi from 21<sup>st</sup> -27<sup>th</sup> January, 2019.
- **Ms. Saloni Shivam and Mr. Kurva Raghu Ramudu** attended Short course on 'One Health with special reference to Fisheries and Aquaculture' at ICAR-CIFE, Mumbai from 18<sup>th</sup> to 27<sup>th</sup> February, 2019.
- **Dr. P. Rameshkumar**, attended a training programme on 'Development and application of vaccines for fish aquaculture' at ICAR-Central Institute of Fisheries Education, Mumbai during 4<sup>th</sup>-13<sup>th</sup>, February 2019.
- **Shri. Navin Kumar Yadav**, AD (OL) attended seminar on 'Use of Official Language in Scientific Institutes under ICAR' held on 25<sup>th</sup> and 26<sup>th</sup> February, 2019 at ICAR-CIFE, Mumbai.
- **Shri. Navin Kumar Yadav and Smt. Vandana V.**, Technical Assistant (HT) attended Official Language Regional Conference of Department of Official Language, Ministry of Home Affairs, New Delhi held on 14<sup>th</sup> February, 2019 at CUSAT, Cochin.
- **Dr. P. Vijayagopal and Smt. E. K. Uma**, ACTO (HT) attended Half yearly meeting of Kochi TOLIC held on 26<sup>th</sup> March, 2019 at Income Tax Office, Cochin.
- **Smt. Vandana V.** attended two days Official Language Seminar organized by Sree Sankaracharya Sanskrit University, Kalady on 30<sup>th</sup> & 31<sup>st</sup> January, 2019 and presented OL implementation activities of ICAR- CMFRI.



<b>PROMOTIONS</b>			
<b>Name &amp; Designation</b>	<b>Promoted as</b>	<b>Centre</b>	<b>w.e.f</b>
Dr. Rengarajan Jayakumar Senior Scientist	Principal Scientist	Mandapam Regional Centre	22.06.2017
Dr. Rajesh K. M. Senior Scientist	Principal Scientist	Mangalore Research Centre	28.03.2018
Dr. Vidya Jayasankar Senior Scientist	Principal Scientist	Madras Research Centre	06.04.2018
Mr. A. V. Joseph Chief Finance & Accounts Officer	Comptroller	ICAR-CMFRI, Kochi	14.03.2019
Mrs. Kala Devi M. P., LDC	UDC	Vizhinjam Research Centre	21.03.2019
<b>APPOINTMENTS</b>			
<b>Name</b>	<b>Designation</b>	<b>Centre</b>	<b>w.e.f</b>
Mr. Digambhar Suresh Kumbhar	Technician	Ratnagiri Field Centre	11.01.2019
Mrs. Sini M. B.	Technician	Madras Research Centre	14.01.2019
Mr. Vishnu P. G.	Technician	Cuddalore Field Centre	14.01.2019
Mr. Mahendra Pandit Sonawane	Technician	Ratnagiri Field Centre	17.01.2019
Mr. Sonara Yogesh Zinabhai	Technician	Alibag Field Centre	21.01.2019
Mr. Prakash Chandra Das	Technician	Puri Field Centre	21.01.2019
Ms. Renuka K.	Technician	Visakhapatnam Regional Centre	22.01.2019
Ms. Sruthi N. S.	Technician	Tuticorin Research Centre	23.01.2019
Mrs. Ambily M. N.	Technician	Madras Research Centre	22.01.2019
Mr. Sineesh Ambi	Technician (Motor Driver)	KVK of ICAR-CMFRI	01.02.2019
Mr. Binoop C. S.	Technician (Motor Driver)	KVK of ICAR-CMFRI	02.02.2019
Mr. Ajay Kumar Parida	Technician	Puri Field Centre	08.02.2019
Ms. Menaka Das	Technician	Visakhapatnam Regional Centre	20.03.2019
<b>TRANSFER</b>			
<b>Name &amp; Designation</b>	<b>From</b>	<b>To</b>	<b>w.e.f.</b>
Mr. Jishnudev M. A., Technician	Visakhapatnam Regional Centre	ICAR-CMFRI, Kochi	01.01.2019
Mr. M. P. Jadhav, Senior Technician	Alibag Field Centre	Mumbai Research Centre	01.02.2019
Mr. Albert Idu K. A., Technical Assistant	Mumbai Research Centre	Vizhinjam Research Centre	04.02.2019
Mr. Ratheesh T., Senior Technical Assistant	ICAR-CMFRI, Kochi	Kollam Field Centre	04.02.2019
Mr. Anoob P. Anassery, Technician	Kovalam Field Centre	ICAR-CMFRI, Kochi	06.02.2019
Mr. Ashok Maharshi V., Senior Technical Assistant	Mandapam Regional Centre	Srikakulam Field Centre	11.02.2019
Mr. Ratheesh Kumar R., Scientist	Mumbai Research Centre	ICAR-CMFRI, Kochi	18.02.2019
Mr. Suraj Surendra Kalgutkar, Skilled Support Staff	Karwar Research Centre	Goa Field Centre	28.02.2019
Mr. A. Anasukoya, Technical Officer	Calicut Research Centre	KVK of ICAR-CMFRI, Lakshadweep	01.03.2019
Mr. P. K. Harikumar, ACTO	Puri Field Centre	ICAR-CMFRI, Kochi	11.03.2019



INTER-INSTITUTIONAL TRANSFER			
Name & Designation	From	To	w.e.f.
Mr. Navin Kumar Yadav, Assistant Director (OL)	ICAR-CMFRI, Kochi	ICAR-CSWRI, Rajasthan	23.03.2019
RESIGNATION			
Name	Designation	w.e.f	Centre
Mr. Digambhar Suresh Kumbhar	Skilled Support Staff	10.01.2019 (AN)	Mumbai Research Centre
Mr. Sonara Yogesh Zinabhai	Skilled Support Staff	19.01.2019 (AN)	Veraval Regional Centre
Ms. Soumya K.	Skilled Support Staff	24.01.2019 (AN)	ICAR-CMFRI, Kochi
Mr. Solanki Mukesh Jesabhai	LDC	16.02.2019 (AN)	Veraval Regional Centre
Mrs. Ambily M. N.	Technician	23.02.2019 (AN)	Madras Research Centre
Mr. Ajay Kumar Parida	Technician	23.03.2019 (AN)	Puri Field Centre
COMPASSIONATE APPOINTMENTS			
Name	Designation	Centre	w.e.f
Mr. Nagaraj Mohan Durgekar	Skilled Support Staff	Karwar Research Centre	22.03.2019
Ms. Divya Bharathy S.	Skilled Support Staff	Mandapam Regional Centre	22.03.2019
ASSUMPTION OF CHARGE			
Dr. A. Gopalakrishnan, Director, ICAR- CMFRI to continue as the Director (Acting) of ICAR-CMFRI from the forenoon of 1 <sup>st</sup> February, 2019			
MEETINGS HELD			
14 <sup>th</sup> Institute Joint Staff Council meeting was held on 29 <sup>th</sup> January, 2019.			
Research Advisory Committee meeting was held during 11 <sup>th</sup> -12 <sup>th</sup> March, 2019.			

## RETIREMENTS ON SUPERANNUATION



**Mr. Thomas Joy**  
Finance & Accounts Officer  
31.01.2019  
ICAR-CMFRI, Kochi



**Mr. K. Lakshminarayana**  
Senior Technical Assistant (Motor Driver)  
31.01.2019  
Visakhapatnam Regional Centre



**Mr. P. P. Chandrasekharan Nair**  
Assistant  
31.01.2019  
ICAR-CMFRI, Kochi



**Mr. P. Selvaraj**  
Skilled Support Staff  
31.01.2019  
Madras Research Centre



**Mr. Prakash C. Shetty**  
Technical Officer  
28.02.2019  
Goa Field Centre



**Mr. V. C. Subhash**  
Assistant  
28.02.2019  
KVK of CMFRI



**Mr. S. Mohanan**  
Skilled Support Staff  
28.02.2019  
ICAR-CMFRI, Kochi



**Smt. P. M. Geetha**  
Technical Officer (Museum)  
31.03.2019  
ICAR-CMFRI, Kochi



**Mr. J. Padmanathan**  
Senior Technical Assistant  
31.03.2019  
Tuticorin Research Centre





Sea ranching of green tiger shrimp seeds at Villundi Theertham, Palk Bay  
by the District Collector of Ramanathapuram



## cadalmin

CMFRI Newsletter

Cadalmin, the CMFRI Newsletter is a quarterly publication of the Central Marine Fisheries Research Institute, Kochi. The publication gives an insight into the major events of the quarter, besides highlighting the salient findings in the research front and dissemination of technological know-how to the farming community.